Patent claims

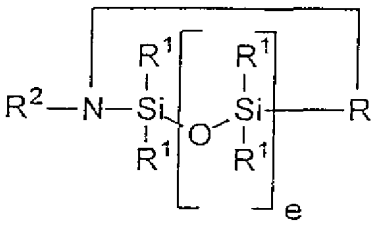
1. A continuous method for the production of amino-functional organosiloxane of the general formula III

$$(SiO_{4/2})_k(R^1SiO_{3/2})_m(R^1_2SiO_{2/2})_p(R^1_3SiO_{1/2})_q [O_{1/2}SiR^1_2\text{-}R\text{-}NH_2]_s[O_{1/2}H]_t \quad (III),$$

in which organosiloxane general formula IV

$$(SiO_{4/2})_k(R^1SiO_{3/2})_m(R^1_2SiO_{2/2})_p(R^1_3SiO_{1/2})_q[O_{1/2}H]_r \quad (IV),$$

is reacted with cyclic silazane of the general formula V



(V),

in which

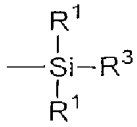
R is a divalent Si-C- and Si-N-bonded, optionally cyano- or halogen-substituted C_3-C_{15}-hydrocarbon radical in which one or more non-neighboring methylene units may be replaced by -O-, -CO-, -COO-, -OCO- or -OCOO-, -S- or $-NR^x-$ groups and in which one or more non-neighboring methine units can be replaced by -N=, -N=N- or -P= groups, at least 3 and not more than 6 atoms being arranged between silicon atom and nitrogen atom of the ring,

$\mathbf{R^x}$ is hydrogen or a C_1-C_{10}-hydrocarbon radical optionally substituted by -CN or halogen,

$\mathbf{R^1}$ is a hydrogen atom or a monovalent Si-C-bonded C_1-C_{20}-hydrocarbon radical or C_1-C_{15}-hydrocarbonoxy

radical that is optionally substituted by -CN, -NCO, $-NR^x_2$, -COOH, $-COOR^x$, -halogen, -acryloyl, -epoxy, -SH, -OH or $-CONR^x_2$ and in which in each case one or more non-neighboring methylene units may be replaced by -O-, -CO-, -COO-, -OCO- or -OCOO-, -S- or $-NR^x-$ groups and in which one or more non-neighboring methine units may be replaced by -N=, -N=N- or -P= groups,

R^2 may be hydrogen or a C_1-C_{10}-hydrocarbon radical optionally substituted by a -CN or halogen or may be a radical of the general formula VIII



(VIII),

in which

R^3 is hydrogen or a C_1-C_{10}-hydrocarbon radical optionally substituted by -CN, $-NR^x$ or halogen,

e has values of greater than or equal to 0,

s has values of at least 1,

r has values of at least 1,

s+t have the value of **r** and

k + m + p + q have values of at least 2,

the silazane of the general formula V and the organosiloxane of the general formula IV being fed continuously to a reactor, being mixed there and reacted with one another and then being removed from the reactor region.

2. The method as claimed in claim 1, in which the reactor is selected from continuous kneaders, extruders, glass reactors, static and dynamic mixers.

3. The method as claimed in claim 1 or 2, in which **R** is a straight-chain C_3-C_6-alkylene radical which may be substituted by halogen atoms.

4. The method as claimed in any of claims 1 to 3, in which $\mathbf{R^1}$ is methyl, ethyl, phenyl, vinyl or trifluoropropyl.

5. The method as claimed in any of claims 1 to 4, in which the sum of **k**, **m**, **p**, **q**, **s** and **t** is a number from 2 to 20 000.

6. The method as claimed in any of claims 1 to 5, in which resins are prepared in which 5% < **k** + **m** < 90%, based on the sum of **k**, **m**, **p**, **q**, **r**, **s** and **t**.

7. The method as claimed in any of claims 1 to 6, in which a linear organosiloxane of the general formula VI

$$[H]_u[H_2N\text{-}R\text{-}SiR^1_2]_vO(SiR^1_2O)_nSiR^1_2\text{-}R\text{-}NH_2 \qquad (VI)$$

is prepared from an organosiloxane of the general formula VII

$$HO(R^1_2SiO)_nR^1_2SiOH \qquad (VII)$$

with a cyclic silazane of the above general formula V,

u having the values 0 or 1,

v having the values 1 – u and

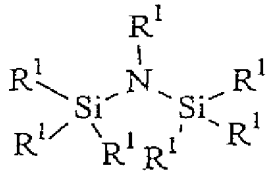
n being a number from 1 to 20 000.

8. The method as claimed in any of claims 1 to 7, the method being carried out at from 0°C to 100°C.

9. The method as claimed in any of claims 1 to 8, in which an amino-functional organosiloxane of the general formula IX

$$(SiO_{4/2})_k(R^1SiO_{3/2})_m(R^1_2SiO_{2/2})_p(R^1_3SiO_{1/2})_q$$
$$[O_{1/2}SiR^1_2\text{-}R\text{-}NH_2]_s[O_{1/2}H]_t(O_{1/2}SiR^1_3)_w \qquad (IX)$$

is prepared by adding a silazane of the general formula VI to the organosiloxane of the general formula IV in less than the stoichiometric amount and reacting unconverted Si-OH groups in the amino-functional organosiloxane of the general formula III with silazanes of the following general formula VIII



VIII

in which

R, **R**^{1}, **k**, **m**, **p**, **q** and **s** are defined as in claim 1,

t is greater than or equal to 0,

w is greater than 0 and

s + t + w = r.

10. The method as claimed in claim 9, in which silazanes of the general formula VIII are used after the reaction of the silazane of the general formula V.

11. The method as claimed in any of claims 1 to 10, in which N-((3-aminopropyl)dimethylsilyl)-2,2-dimethyl-1-aza-2-silacyclopentane is used as the silazane of the general formula (V).